UNITED STATES PATENT AND TRADEMARK OFFICE

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10/830,042	04/23/2004	John M. Holt	22216-00003-US1	9699

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/830,042	HOLT, JOHN M.
	Examiner	Art Unit	
	J. Derek Rutten	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 May 2007</u>.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-9,11-18 and 20-23</u> is/are pending in the application.

    4a) Of the above claim(s) <u>1-6,11-13 and 20-23</u> is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>7-9 and 14-18</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☒ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This action is in response to Applicant's submission filed 5/25/07, responding to the

1/25/07 Office action which detailed the rejection of claims 7-10 and 14-19. Claims 7, 8, and 14

have been amended, claims 10 and 19 have been canceled, and claims 1-6, 11-13, and 20-23

have been withdrawn. Claims 1-9, 11-18, and 20-23 remain pending in the application. Claims

7-9 and 14-18 have been fully considered and examined.

Terminal Disclaimer

2.   The terminal disclaimer filed on 5/25/07 disclaiming the terminal portion of any patent

granted on this application which would extend beyond the expiration date of U.S. Patent

Application serial nos. 11/111,757, 11/111,778, 11/111,779, 11/111,781, and 11/111,946 has

been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Amendment/Arguments

3.   The objections to the specification have been withdrawn in view of the amendments filed

5/25/07.

4.   The double patenting rejections have been withdrawn in view of the terminal disclaimer

filed 5/25/07.

5.   The rejections under 35 U.S.C. 112, second paragraph have been withdrawn in view of

the amendments filed 5/25/07.

6.   On pages 13 and 14, Applicant essentially argues that the Morshed reference discloses a

distributed application program in contrast to claim 7 which is directed to "processing a

corresponding portion of the application program on one of a plurality of computers," with different portions being "simultaneously executable on each one of the plurality of computers..." Applicant's arguments are not persuasive. The plain language of the claim simply calls for "processing a portion" on one computer, and simultaneous execution on a plurality of computers. The claim does not contain language that limits any form of distributed computing. Morshed processes a portion on one computer, simply by loading it into memory. Morshed also discloses a client/server implementation of "a distributed application" which provides for simultaneous execution of portions of the application (see FIG. 35 and column 42 line 61 – column 43 line 34). As such, Morshed meets the claim limitations.

7.   At the bottom of page 15, Applicant essentially argues that the Scales reference does not disclose "different portions of the application program are substantially simultaneously executed on different computers." However, Scales discloses a distributed share memory system which is built, as shown in Fig. 2 of Scales, using different computers. Applicant has not persuasively argued that Scales does not disclose simultaneous execution on "different computers." Therefore, Applicant's arguments are not persuasive.

8.   At the bottom of page 16 – page 17, Applicant essentially argues in reference to the rejection of claims 17 and 18 under 35 U.S.C. 103 that the Dimpsey reference does not disclose the features of claim 14. However, as discussed above, these features are disclosed by Scales.

9.   In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "an application program written to operate on only a single computer" – see middle of page 17) are not recited in the rejected claims. Although the claims are interpreted in light of the

specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Objections

10.   Claims 7 and 14 are objected to because of the following informalities: Claim 7 recites: "A method of loading an application program processing a corresponding portion of the application program on one of a plurality of computers..." This clause appears to have omitted the preposition "by" between "program" and "processing." This is interpreted as a clerical error that should have recited "A method of loading an application program by processing a corresponding portion of the application program on one of a plurality of computers..." A similar issue exists in claim 14 and is interpreted similarly to claim 7. Appropriate correction is required.

Claim Rejections - 35 USC § 112

11.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12.   Claims 7-9 and 14-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "substantially" in line 4 of claim 7 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would

not be reasonably apprised of the scope of the invention. The term "substantially" is used to describe simultaneous executability of a portion of an application on each of a plurality of computers. However, it is not clear where the threshold for substantial simultaneous executability occurs, and thus the claim is indefinite. For the purpose of further examination, the term will not be considered in the language of the claim. Claim 14 contains similar language in line 4, and is interpreted accordingly as above. Claims 8 and 9 depend from claim 7, and claims 15-18 depend from claim 14 and are rejected for the same reason given above.

13.   Claims 7-9 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting an essential step, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted step is: loading the application program. Claim 7 is directed to "A method of loading an application program." However, the program is never actually loaded. Claims 8 and 9 are rejected as being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 102

14.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

15.   Claims 7 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,760,903 to Morshed et al. (hereinafter "Morshed").

In regard to claim 7, Morshed discloses:

A method of loading an application program <by> processing a corresponding

portion of the application program on one of a plurality of computers, See column 20:60-

61:

> Byte code may be instrumented by instrumenting each class as the class is loaded by the VM runtime system.

the plurality of computers being interconnectable via a communications link, See

Figure 29 and associated text in column 32:50-57, e.g. "network";

and different portions of said application program being <> simultaneously

executable on each one of the plurality of computers with each one of the plurality of

computers having an independent local memory accessible only by the corresponding

portion of the application program, See column 34 lines 39-42:

> In this example, the COM DLL may be used for facilitating interprocess communication, for example, as between a client and a server as well as between any two server systems.

Also see FIG. 29 and associated text in column 32 lines 50-57, e.g. elements 1000 and

1016a. This figure depicts separate computer systems which Morshed describes in terms

of Intel Pentium processors running the MS Windows® operating systems which

implicitly provides access to independent local memory by a corresponding portion of

software.

the method comprising the step of modifying the application program before

execution of said corresponding portion. See column 20:60-61:

> Byte code may be instrumented by instrumenting each class as the class is loaded by the VM runtime system

In regard to claim 8, the above rejection of claim 7 is incorporated. Morshed

further discloses: *wherein the step of modifying the application program is different for*

different computers. See column 33:28-31, e.g. "different activities."

16.   Claims 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent

No. 5,802,585 to Scales et al. (hereinafter "Scales").

In regard to claim 14, Scales discloses:

A method of compiling or modifying an application program <by> processing a

corresponding portion of the application program to run simultaneously on one of a

plurality of computers interconnectable via a communications link See Figure 2 with

supporting disclosure in column 4:29-30, e.g. "programs 215 are instrumented", Also see

column 4 lines 18-19: "During operation of the system 200, instructions of the programs

215 are executed by the processors 211." This passage shows that a portion of the

program runs on one of a plurality of computers.

and different portions of said application program being <> simultaneously

executable on each one of said plurality of computers with each one of the plurality of

computers having an independent local memory accessible only by the corresponding

portion of the application program, See column 5 lines 6-8, e.g. "store private data only

operated on by a local processor."

said method comprising the steps of:

(i) detecting instructions which share memory records See Scales column 4:38-

42, e.g. "coherency."

(ii) listing all such shared memory records and providing a naming tag for each

listed memory record See column 6:20-21, e.g. "table," and column 11:6-10, e.g. "ID."

(iii) detecting those instructions which write to, or manipulate the contexts of, any

of said listed memory records, and See column 4:30-32, e.g. "stores."

(iv) generating an alert instruction following each said detected write or

manipulate instruction, said alert instruction forwarding the re-written or manipulated

contents and name tag of each said re-written or manipulated listed memory record. See

column 1:43-49, e.g. "message passing" and column 32-35, e.g. "miss check."

In regard to claim 15, the above rejection of claim 14 is incorporated. Scales

further discloses: *carried out prior to loading the application program onto each said*

computer. See column 4 lines 29-30, e.g. "prior to execution."

Claim Rejections - 35 USC § 103

17.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

18.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morshed in view

of Scales.

In regard to claim 9, the above rejection of claim 7 or 8 is incorporated. Morshed

does not expressly disclose further elements of claim 9. However, Scales teaches:

wherein said modifying step comprises:

(i) detecting instructions which share memory records See Scales column 4:38-

42, e.g. "coherency."

(ii) listing all such shared memory records and providing a naming tag for each

listed memory record See column 6:20-21, e.g. "table," and column 11:6-10, e.g. "ID."

(iii) detecting those instructions which write to, or manipulate the contexts of, any

of said listed memory records, and See column 4:30-32, e.g. "stores."

(iv) generating an alert instruction corresponding to each said detected write or

manipulate instruction, said alert instruction forwarding the re-written or manipulated

contents and name tag of each said re-written or manipulated listed memory record. See

column 1:43-49, e.g. "message passing" and column 32-35, e.g. "miss check."

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to use Scales' shared memory with Morshed's loading in order to

provide coherency (see Scales column 1:20-26).

19.   Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scales as applied

to claim 14 above, and further in view of Morshed.

In regard to claim 16, the above rejection of claim 14 is incorporated. Scales does not expressly disclose: *carried out during loading of the application program onto each said computer.* However, Morshed teaches instrumenting during loading. See column 20:60-61. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Morshed's teaching of loading with Scales' modification in order to automatically instrument a class instance (see Morshed column 20:61-65).

20.   Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scales as applied to claim 14 above, and further in view of U.S. Patent Application Publication 2004/0163077 by Dimpsey et al. (hereinafter "Dimpsey.")

In regard to claim 17, the above rejection of claim 14 is incorporated. Scales does not expressly disclose: *carried out by just-in-time compilation.* However, Dimpsey teaches just-in-time compilation. See paragraph [0050]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Dimpsey's compiler with Scales' modification in order to increase execution speed while reducing compilation time as inherently provided by just-in-time compilation.

In regard to claim 18, the above rejection of claim 14 is incorporated. Scales does not expressly disclose: *carried out by re-compilation after loading.* However, Dimpsey teaches dynamic instrumentation after loading code. See Abstract. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use

Dimpsey's dynamic instrumentation in order to minimize system perturbation (see

Dimpsey's Abstract). Note that page 9 lines 6-8 of Applicant's specification inform

broad interpretation of the concept of "compilation."

Conclusion

21.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. "MultiJav: A Distributed Shared Memory System Based on Multiple Java Virtual

Machines" by Chen et al. discloses a distributed runtime system that permits distributed

execution of an application designed to run on one computer.

22.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

23.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to J. Derek Rutten whose telephone number is (571)272-3703. The

examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tuan Q. Dam can be reached on (571)272-3695. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jdr

TUAN DAM
SUPERVISORY PATENT EXAMINER